

Unit 10 - Week 9

Course outline

How to access the portal?

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Week 2

Week 3

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Week 9

- DC Motor: Speed Control (Shunt and Separately Excited Motor)
- DC Motor: Speed Control (Series and Compound Motor)
- DC Machine: Starting and Braking
- DC Machine: Comutation
- Quiz : Assignment 9
- Feedback Form

Week 10

Week 11

Week 12

Solutions for Assignments

Assignment 9

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-10-02, 23:59 IST.

1) Under no-load a DC shunt machine draws 4 A from a 250 V DC source. $R_a = 0.5\Omega$; $R_f = 250\Omega$. Find the efficiency of this machine as a generator when $I_L = 25$ A at a terminal voltage of $V_t = 250$ V. **1 point**

- 92.6 %
 82.4 %
 84.3 %
 80.1 %

No, the answer is incorrect.
Score: 0

Accepted Answers:
82.4 %

2) A dc series motor with an unsaturated magnetic circuit and having negligible resistance, when running at a certain speed on a given load, takes 20 A at 220 V. If the load torque varies as the cube of the speed, find the resistance necessary to reduce the speed by 60%. **1 point**

- 16 Ω
 23 Ω
 39 Ω
 28 Ω

No, the answer is incorrect.
Score: 0

Accepted Answers:
39 Ω

For questions 3& 4

A 44.76 kW, 250 V, 4-pole, lap-connected D.C. shunt motor has 30 slots with 12 conductors/slot. The armature and shunt field resistances are 0.06 Ω and 100 Ω respectively. The flux/pole is 0.03 Wb. If the full load efficiency is 88 %. **1 point**

3) The speed of the motor at full load is :

- 138.43 rad/s
 130.58 rad/s
 125.92 rad/s
 None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
138.43 rad/s

4) The useful torque at shaft at full load condition will be, **1 point**

- 323.3 N-m
 300.5 N-m
 352.4 N-m
 None of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:
323.3 N-m

For questions 5 to 8

A 240V unsaturated shunt motor has an armature resistance (including brushes and inter-poles) of 0.04 Ω and field resistance of 100 Ω . **1 point**

5) Find what resistance must be added to the field circuit to increase the speed from 1200 to 1500 rev per min, when the supply current is 200A. **1 point**

- 30 Ω
 32 Ω
 33 Ω
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
None of the above

6) With the field resistances as in question (5), find the speed when the supply current is 100A **1 point**

- 1525 rpm
 1500 rpm
 1410 rpm
 None of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:
1525 rpm

7) If the machine is run as a generator to give 200A at 240V find the field current at 1200 r.p.m. **1 point**

- 1.9 A
 2.56 A
 3.03A
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
2.56 A

8) If the machine is run as a generator to give 200A at 240V find the speed when the field current is 2A. **1 point**

- 1552.4 rpm
 1525.3 rpm
 1538.9 rpm
 1460.6 rpm

No, the answer is incorrect.
Score: 0

Accepted Answers:
1538.9 rpm